

**PATENT**

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

Application No.: 10/512,130

Filing Date: October 13, 2004

Applicant: Manuela NIEMEIER et al.

Group Art Unit: 1773

Examiner: Monique R. Jackson

Title: COATINGS, METHODS FOR PORDUCING THE  
SAME, AND THE USE THEREOF

Attorney Docket: PAT-01027  
Harness, Dickey & Pierce Docket No. 906-407

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Director of the United States Patent and Trademark Office  
P.O. Box 1450  
Alexandria, VA 22313-1450

**Appeal Brief Under 37 C.F.R. § 41.37**

Sir:

This is an appeal from the final Office Action mailed January 10, 2007, finally rejecting all pending claims. A Notice of Appeal was mailed on March 9, 2007 appealing all of the rejected claims. This Brief is due, without extension, on May 98, 2007.

This Brief is accompanied by the fee under 37 C.F.R. § 41.20(b)(2).

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### **Real Party in Interest**

The real party in interest is BASF Coatings Aktiengesellschaft, a corporation of Germany, to which the inventors assigned all rights in this invention. The assignment was recorded by the USPTO on 2/2/05 at reel 015634, frame 0149.

### **Related Appeals and Interferences**

There are no related appeals or interferences.

### **Status of Claims**

Claims 1-23 are all pending and all stand finally rejected. This appeal is taken as to all of the pending claims.

### **Status of Amendments**

No amendment was filed after the final rejection.

### **Summary of Claimed Subject Matter**

Independent claims 1, 19, and 23 are pending.

Claim 1 is to an article comprising a transparent coating. Page 4, line 5 (para. 16); page 18, lines 23-26 (para. 97). The coating has a thickness of at least 30 microns, a relative elastic resilience to DIN 55676 of at least 70%, and a scratch resistance corresponding to a score of not more than 2 in a steel wool scratch test according to DIN 1041 after 10 double strokes. Page 4, lines 5-8 (para. 16).

Although it appeared intuitive to correlate scratch resistance to coating surface hardness, it was not possible to do so, and such tests did not take into account other properties required of a coating. Page 2, lines 4-19. Furthermore, elastomers are resistive to damage by mechanical exposure but are unsuitable for transparent coating materials. Page 3, lines 1-8 (para. 9). The claimed coated substrate is both scratch resistant and has a high relative elastic resiliency. Page 4, lines 22-31 (paras. 20-21).

Claims 2-18, 21, and 22 are dependent on claim 12.

Independent claim 19 claims a process for producing a scratch-resistant coating. Page 4, lines 9-15 & 28. The process comprises applying a coating material to a substrate or to an uncured, part-cured, or cured film present thereon, and curing the coating material. Page 4, lines 9-15 & page 20, lines 7-8. The coating material, following its solidification or curing, has an elastic resilience to DIN 55676 of at least 70% and a scratch resistance corresponding to a score of not more than 2 in a steel wool scratching test according to DIN 1041 after 10 double strokes. Page 4, lines 12-14.

Claim 20 is dependent on claim 19.

Independent claim 23 claims a method of testing scratch resistance of a coating, comprising providing a coating on an article, the coating having a thickness of at least 30  $\mu\text{m}$ , and determining if the coating has a relative elastic resilience to DIN 55676 of at least 70%, and a scratch resistance corresponding to a score of not more than 2 in a steel wool scratch test according to DIN 1041 after 10 double strokes. Page 4, lines 12-14 & 24-26; page 6, lines 11-13 (para. 32).

**Grounds of Rejection to Be Reviewed on Appeal**

Claims 1-23 stand rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the enablement requirement.

## Argument

- I. **Appellants' invention as claimed in claims 1-18, 21, and 22 is enabled by the specification because the specification teaches how to prepare, apply, solidify or cure, and test coated articles.**

The specification provides enables claims 1-18, 21, and 22 because Appellants teach how to prepare coatings, apply them to articles, cure or solidify the applied coatings, and test the coated articles for the properties in the claims. While Applicants' claims are broad, determining whether a coated article falls within the scope of the claims requires only straightforward testing according to the stated test methods. This testing protocol is described and illustrated in the present specification in sufficient detail to school the skilled artisan, including provisions of specific working examples.

The Federal Circuit has held that “the question of undue experimentation is a matter of degree. The fact that some experimentation is necessary does not preclude enablement; what is required is that the amount of experimentation ‘must not be unduly extensive.’” *PPG Indus. Inc. v. Guardian Indus. Corp.*, 37 U.S.P.Q.2d 1618, 1623 (Fed. Cir. 1996). In *PPG Industries* the court further instructed that it is not the extent of experimentation, but the type that determines whether it is “unduly extensive”: “The test is not merely quantitative, since a considerable amount of experimentation is permissible, if it is merely routine, or if the specification in question provides a reasonable amount of guidance with respect to the direction in which the experimentation should proceed to enable the determination of how to practice a desired embodiment of the invention claimed.” *PPG Indus. Inc. v. Guardian Indus. Corp.*, 37 U.S.P.Q.2d 1618, 1623 (Fed. Cir. 1996) (quoting with approval *Ex parte Jackson*, 217 U.S.P.Q. 804, 807 (BPAI 1983)).

In regard to the present claims, applying a coating on an article and measuring the coating's relative elastic resilience and scratch resistance involves straightforward application and testing techniques. The experimentation required is, therefore, not undue, and the claims are enabled.

Accordingly, Appellants submit that the rejection should be REVERSED.

**II. Appellants' invention as claimed in claims 19 and 20 is enabled by the specification because Appellants describe how to apply a coating material to a substrate, how to cure the applied coating, and how to test the coating.**

The process of claims 19 and 20 involves actions that are well-explained in the present specification, from preparing coating materials (pages 6-17), applying the coating materials to a substrate (pages 17-20), and curing the applied material (pages 20-21). The test methods are established standards, and, further, specific working examples are described in the specification. Pages 22-26. The steps for carrying out the claimed process are described and explained in good detail in the specification, and it is well within the skill of one of ordinary skill in the art to carry out the process steps.

In view of these disclosures, Appellants submit that the specification enables one of ordinary skill in the art to carry out the claimed process.

**III. Appellants' invention as claimed in claim 23 is enabled by the specification because the person of ordinary skill in the art can carry out the method of testing claimed in view of Appellants' provision of specific examples in the text.**

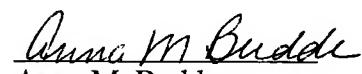
The method of claim 23, the steps of providing a coating with a thickness of at least 30 microns and determining if the coating has certain properties by applying two published test methods is enabled. The Examiner argues on page 2 of the final office action that the claimed method "fails to provide any clear process steps other than 'providing a coating' and 'determining' if the coating provides certain properties." There is, however, no requirement of a certain number of steps in a valid claim, or a limitation against steps of "determining" certain properties of values. The Examiner's objections do not bear on enablement.

Because the Examiner has not set out a *prima facie* case for lack of enablement, Appellants respectfully request the rejection of claim 23 be REVERSED.

Conclusion

The present claims are patentable over the cited art. Applicants, therefore, respectfully petition this Honorable Board to reverse the final rejection of the claims on each ground and to indicate that all claims are allowable.

Respectfully submitted,

  
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## Claim Appendix

### *Copy of the ClaimsAppealed*

1. An article comprising a transparent coating, wherein the coating has a thickness of at least 30 µm, a relative elastic resilience to DIN 55676 of at least 70%, and a scratch resistance corresponding to a score of not more than 2 in a steel wool scratch test according to DIN 1041 after 10 double strokes.
2. The article of claim 1, wherein the coating has an elastic resilience of at least 74%.
3. The article of claim 1, wherein the coating has an elastic resilience of at least 78%.
4. The article of claim 1, wherein the coating has a thickness of at least 40 µm.
5. The article of claim 1, wherein the coating has a transmission >90% for light with a wavelength between 400 and 700 nm.
6. The article of claim 1, wherein the coating has an adhesion in accordance with DIN ISO 2409 to degreased float glass and degreased stainless steel 1.4301 of GT/TT 0/0.
7. The article of claim 1, wherein the coating has on a pigmented basecoat an adhesion according to DIN ISO 2409 of GT/TT 0/0.
8. The article of claim 1, wherein the coating is a thermosetting coating.
9. The article of claim 8, wherein the coating is prepared from a curable coating material.
10. The article of claim 9, wherein the coating is thermally curable.

11. The article of claim 9, wherein the curable coating material comprises organic and inorganic constituents.
12. The article of claim 11, wherein the curable coating material has an ignition residue of at least 10% by weight.
13. The article of claim 1, wherein the coating is prepared from a coating material comprising an aqueous dispersion with a pH of from 2 to 7 comprising
  - (A) at least one swellable polymer and/or oligomer containing at least one functional group that is at least one of an anionic functional group, a potentially anionic functional group, and/or a nonionic hydrophilic functional group,
  - (B) surface-modified, cationically stabilized inorganic nanoparticles of at least one kind, and
  - (C) at least one amphiphile.
14. The article of claim 13, wherein the aqueous dispersion, based on its total amount, has a solids content of up to 60% by weight.
15. The article of claim 13, wherein the aqueous dispersion, based on the sum (A) + (B) + (C), contains
  - from 1 to 30% by weight of (A),
  - from 60 to 98% by weight of (B), and
  - from 1 to 10% by weight of (C).
16. The article of claim 13, wherein the at least one polymer and/or oligomer contains anionic and/or potentially anionic functional groups and has, at a pH of from 2 to 7, an electrophoretic mobility  $\leq -0.5$  ( $\mu\text{m/s}$ )/(V/cm).
17. The article of claim 13, wherein the inorganic nanoparticles (B) are selected from the group consisting of main group metals, transition group metals, and their compounds.

18. (Currently amended) The article of claim 13, wherein the at least one amphiphile is selected from the group consisting of monoalcohols and aliphatic polyols.
19. A process for producing a scratch-resistant coating comprising applying a coating material to a substrate or to an uncured, part-cured, or cured film present thereon, and curing the coating material, wherein the coating material, which following its solidification or curing, has an elastic resilience to DIN 55676 of at least 70% and a scratch resistance corresponding to a score of not more than 2 in a steel wool scratching test according to DIN 1041 after 10 double strokes.
20. The process of claim 19, wherein the coating material is applied by spraying.
21. The article of claim 1, wherein the coating is on a surface of a substrate, and the coating protects the substrate against damage by mechanical exposure and/or provides for decoration of the substrate.
22. The article of claim 21, wherein the substrate is one of a motor vehicle, a motor vehicle part, a building, furniture, a window, a door, an industrial part, a coil, a container, a packaging, an electrical component, a white good, a film or hollow glassware.
23. A method of testing scratch resistance of a coating, comprising providing a coating on an article, the coating having a thickness of at least 30  $\mu\text{m}$ , and determining if the coating has a relative elastic resilience to DIN 55676 of at least 70%, and a scratch resistance corresponding to a score of not more than 2 in a steel wool scratch test according to DIN 1041 after 10 double strokes.

## EVIDENCE APPENDIX

### Evidence entered by examiner and relied on by appellant

None.

## RELATED PROCEEDINGS APPENDIX

None.